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**Filed** : March 19, 2004

### **REMARKS**

Claims 4, 7, 8, 11, 12, 15 and 16 are canceled herein without any change to the subject matter encompassed by the claims.

Claims 17 and 22 are amended herein. Support for the amendment is found throughout the specification, for example, at page 9, lines 2-5. No new matter is added by the amendments to the claims.

Upon entry of the amendments, Claims 1, 2, 5, 6, 9, 10, 13, 14 and 17-28 are pending in this application.

### **Rejection of Claims 4, 7, 8, 11, 12, 15 and 16 under 35 U.S.C. §112, Second Paragraph**

Claims 4, 7, 8, 11, 12, 15 and 16 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite because they are duplicative.

Claims 4, 7, 8, 11, 12, 15 and 16 are canceled herein. Accordingly, this rejection is moot.

### **Rejection of Claims 1, 2 and 4-28 under 35 U.S.C. §103**

Claims 1, 2 and 4-28 are rejected under 35 U.S.C. §103(a), as obvious over the JP Abstract 2001232730 (the '730 Abstract), in view of Nakamura et al. (U.S. Pat. No. 5,030,683) and Bugajski et al. (U.S. Pat. No. 5,777,022).

The PTO takes the position that the acid value of 15-100 mg KOH in the '730 Abstract teaches all elements except the recited (meth)acrylic polymer, that Nakamura teaches acrylic polymers with hydroxyl values from 10-300, and that Bugajski teaches polyisocyanate crosslinking agents and acrylic resins having no carboxylic acid functionality.

Applicants respectfully traverse.

### **Claims 1, 2, 5, 6, 9, 10, 13, 14 and 17-28 are not Obvious over the Cited References**

Claim 1 is directed to a Applicant plastic film, comprising: a substrate; and a hard coating layer formed on at least one side of the substrate, wherein the hard coating layer has a crosslinked structure comprising a methacrylic or acrylic polymer with a hydroxyl value of 20 to 80 (KOH mg/g) and a crosslinking agent selected from the group consisting of an epoxy-type crosslinking agent and an isocyanate-type crosslinking agent, wherein the methacrylic or acrylic polymer does not contain carboxylic acid functional groups, wherein the methacrylic or acrylic polymer is a

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HALS-hybrid methacrylic or acrylic polymer. Claims 2, 5, 6, 9, 10, 13, 14, 27 and 28 ultimately depend from Claim 1.

Claim 17 is directed to a plastic film comprising a substrate having a thickness of about 60  $\mu\text{m}$  to about 200  $\mu\text{m}$ , and a hard coating layer having a thickness of about 1  $\mu\text{m}$  to about 10  $\mu\text{m}$  formed on at least one side of the substrate, wherein the hard coating layer has a three-dimensional structure comprising methacrylic and/or acrylic polymers crosslinked with each other, said polymers having a hydroxyl value of 20 to 80 KOH mg/g, and wherein the substrate shows a swelling rate of no more than 5% as measured after the surface of the hard coating layer of the plastic film is kept in contact with toluene for 5 minutes, wherein the methacrylic and/or acrylic polymers comprise a HALS-hybrid methacrylic or acrylic polymer. Claims 18-21 ultimately depend from Claim 17.

Claim 22 is directed to a method of manufacturing a plastic film comprising: providing a substrate having a thickness of about 60  $\mu\text{m}$  to about 200  $\mu\text{m}$ ; providing a polymer solution comprising methacrylic and/or acrylic polymers having a hydroxyl value of 20 to 80 KOH mg/g, a crosslinking agent, and a solvent; applying the polymer solution on at least one side of the substrate; and curing the polymer solution to form a hard coating layer having a thickness of about 1  $\mu\text{m}$  to about 10  $\mu\text{m}$  having a three-dimensional crosslinked structure, wherein the substrate shows a swelling rate of no more than 5% as measured after the surface of the hard coating layer of the plastic film is kept in contact with toluene for 5 minutes, wherein the methacrylic and/or acrylic polymers comprise a HALS-hybrid methacrylic or acrylic polymer. Claims 23-26 ultimately depend from Claim 22.

Applicants submit that no combination of the cited references renders obvious the entirety of the claimed subject matter because no combination of the references would lead one of ordinary skill to develop a methacrylic or acrylic polymer that is a HALS-hybrid methacrylic or acrylic polymer.

The '730 Abstract and Nakamura are silent regarding any HALS compounds, and, thus, their teachings are not relevant to developing a methacrylic or acrylic polymer that is a HALS-hybrid methacrylic or acrylic polymer.

Bugajski, at Examples 1 and 2, teaches acrylic emulsions containing Tinuvin® 292, a hindered amine light stabilizer, dispersed in the emulsions. However, neither Bugajski's emulsions, nor any reaction product thereof, contains a HALS-hybrid polymer, as recited in

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Claims 1, 17 and 22. The structure of Tinuvin® 292, is described in the Declaration by Shinsuke Ikishima, which is attached herewith as Exhibit 1. The Ikishima Declaration demonstrates that Tinuvin® 292 is a low-molecular-weight compound, and is not a polymeric hindered amine light stabilizer. This characterization by the Ikishima Declaration is further supported by the Tinuvin® 292 product information sheet attached to the Ikishima Declaration as Appendix 1. As explained in the Ikishima Declaration, Tinuvin® 292 cannot be incorporated into an acrylic polymer structure in either Example 1 or Example 2 of Bugajski because Tinuvin® 292 does not have a functional group reactive to the acrylic polymer structure of the coatings formed in these examples. Instead, Tinuvin® 292 is dispersed in and intermixed with the components of the coatings of Example 1 or Example 2 of Bugajski. As such, Tinuvin® 292, as present in the coatings of Example 1 or Example 2 of Bugajski, is capable of diffusing within the coatings of Example 1 or Example 2 of Bugajski but is not capable of being incorporated into the polymer structure thereof.

In contrast, the HALS-hybrid polymer of Claims 1, 17 and 22 is structurally different from the emulsions of Bugajski containing HALS dispersed therein. Applicants teach at page 9, lines 2-5 that a HALS-hybrid polymer is a hindered amine light stabilizer (HALS) having a functional group at its end, and is copolymerized in the methacrylic or acrylic polymer of the plastic film, thereby being incorporated into the methacrylic or acrylic polymer. Such structural configuration is echoed in the Ikishima Declaration. As further explained in the Ikishima Declaration, by virtue of being incorporated into a methacrylic or acrylic polymer, the HALS compound of the HALS-hybrid methacrylic or acrylic polymer does not leach out of the polymer.

As is clear from the Ikishima Declaration and Applicants' specification, there is a clear structural difference between the HALS-hybrid methacrylic or acrylic polymer recited in Claims 1, 17 and 22 and the Tinuvin® 292-containing coatings of Bugajski, and nothing in Bugajski, the '730 Abstract, Nakamura, or any combination thereof, would lead one of ordinary skill to modify and combine the teachings of these references in such a way as to arrive at the claimed subject matter because Tinuvin® 292, as used by Bugajski, is not capable of being incorporated into a polymer structure.

Furthermore, the HALS-hybrid methacrylic or acrylic polymer as recited in Claims 1, 17 and 22 possesses properties that are superior to those of the Tinuvin® 292-containing coating emulsions of Bugajski. As provided in the Ikishima Declaration, the above-described structural

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difference between the teachings of Bugajski and Applicants' Claims 1, 17 and 22 leads to properties of the HALS-hybrid methacrylic or acrylic polymer as recited in Claims 1, 17 and 22 that are different from, and superior to, those of the Tinuvin® 292-containing coating emulsions of Bugajski by virtue of containing HALS compounds that are not susceptible to leaching. The properties of a coating layer containing a HALS-hybrid methacrylic or acrylic polymer are superior to a coating layer that only contains Tinuvin® 292 dispersed in a resin because the Tinuvin® 292 dispersed in a resin leaches out of the resin when the resin contacts water. In contrast, the HALS of a HALS-hybrid methacrylic or acrylic polymer does not leach out of the polymer when the polymer contacts water. As such, the structural difference between the HALS-hybrid methacrylic or acrylic polymer present in the plastic film of Claims 1, 17 and 22 and the HALS-dispersed resin of Bugajski results in significant difference in the properties of the claimed plastic film over any film that would contain Bugajski's emulsion. Thus, the HALS-hybrid methacrylic or acrylic polymer represents a non-obvious improvement over the emulsion taught in Bugajski. Further, Bugajski provides no reason for modifying Tinuvin® 292 in order to form a HALS-hybrid polymer in accordance with Claims 1, 17 and 22, nor any reason for which one of ordinary skill would consider that the Tinuvin® 292-containing coating emulsions of Bugajski possessed any inferior property in need of modification. Since '730 Abstract and Nakamura are silent regarding any HALS compounds, no combination of the three cited references teaches all elements of Claims 1, 17 and 22 because no combination of the references provides any basis by which one of ordinary skill would modify the teachings provided therein to arrive at a HALS-hybrid methacrylic or acrylic polymer. As such, the three cited references cannot render Claims 1, 17 and 22 obvious.

In view of the above, Applicants respectfully request reconsideration and removal of this ground for rejection of Claims 1, 2, 5, 6, 9, 10, 13, 14 and 17-28.

**Claims 1, 2, 5, 6, 9, 10, 13, 14, 27 and 28 are further Non-Obvious because Nakamura Cannot be Relied on to Render the Claims Obvious**

In addition to the above, Applicants submit that Nakamura cannot be combined with the '730 Abstract and Bugajski to render obvious a plastic film having a methacrylic or acrylic polymer that does not contain carboxylic acid functional groups, as recited in Claim 1.

Nakamura teaches away from Claim 1, and, accordingly, cannot be combined with the remaining references so as to render obvious Claim 1. In particular, Nakamura teaches:

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The component (B) of the present invention, aqueous polyester resin, is obtained by polycondensation of a polyhydric alcohol component and a polyvalent carboxylic acid component, and preferably usable are those resins which contain 5 to 45% by weight of phenyl rings introduced by the use of an alcohol or carboxylic acid component having a phenyl ring.

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The aqueous polyester resin or the aqueous acrylic resin is required to have an acid value in the range of from 10 to 100 and a hydroxyl value in the range of from 10 to 300. When the acid value is less than 10, it is difficult to make a coating composition aqueous, and when the acid value exceeds 100, the resultant coating composition has inferior water resistance. *Nakamura* at column 3, lines 26-32 and column 4, lines 39-45 (emphasis added).

Thus, Nakamura emphasizes that carboxylic acid functional groups are required in Nakamura's polymers, and teaches that an acid value of less than 10 would be unsuitable. As such, Nakamura's teachings lead away from the plastic film of Claim 1 which recites that the methacrylic or acrylic polymer does not contain carboxylic acid functional groups. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Prior art teaching away from combining elements of a claimed invention serves as evidence of non-obviousness. *KSR Int'l Co. v. Teleflex Inc.*, \_\_\_\_ U.S. \_\_\_\_ (2007), *United States v. Adams*, 383 U.S. 39, 51-52 (1966). When considering the teachings of Nakamura as a whole, it is not possible to arrive at the plastic film of Claim 1 because Nakamura requires carboxylic acid functional groups. Accordingly, no combination of Nakamura with the remaining cited references can render *prima facie* obvious the plastic film of Claim 1.

The Office Action states in regard to the above, that "Bugajski et al, not Nakamura, is relied upon for a teaching of acrylic resins which have no carboxylic acid functionality, as applicants' remarks mistakenly assert." *Office Action* at page 3 (citation omitted). Applicants do not assert that Nakamura "is relied upon for a teaching of acrylic resins which have no carboxylic acid functionality." Applicants assert that Nakamura teaches that carboxylic acid functional groups are required and that Nakamura must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. Nakamura cannot be relied on for teaching of acrylic polymers with particular hydroxyl values, but ignored as to the teaching that carboxylic acid functional groups are required. To do so would be to fail to

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consider the teachings of Nakamura as a whole, and to instead select only an isolated disclosure in Nakamura in rejecting the claims as obvious, which is not permitted. See *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983) and *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Nakamura's teaching that carboxylic acid functional groups are required cannot be ignored. No combination of Nakamura with Bugjaski and the '730 Abstract would lead one of ordinary skill to pick a methacrylic or acrylic polymer with particular hydroxyl values, but choose not to include carboxylic acid functional groups. That is, any combination of Nakamura with the references that would lead one of ordinary skill to include a methacrylic or acrylic polymer with particular hydroxyl values would also include a methacrylic or acrylic polymer with carboxylic acid functional groups because Nakamura teaches that carboxylic acid functional groups are required. Thus Nakamura cannot be combined with Bugjaski and the '730 Abstract to render Claim 1 obvious. As such, the cited references cannot, alone or combined, render Claim 1 obvious because such a combination would either fail to teach all elements of the claimed subject matter or would include carboxylic acid functional groups which are not present in the polymer recited in Claim 1.

In view of the above, Applicants respectfully request reconsideration and removal of this ground for rejection of Claims 1, 2, 5, 6, 9, 10, 13, 14, 27 and 28.

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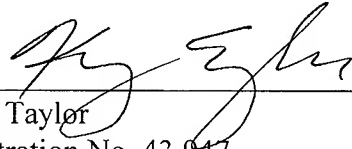
**CONCLUSION**

In view of the above, Applicants respectfully maintain that claims are patentable and request that they be passed to issue. Applicants invite the Examiner to call the undersigned if any remaining issues may be resolved by telephone.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: June 22, 2007 By:   
Kerry Taylor  
Registration No. 43,947  
Attorney of Record  
Customer No. 20,995  
(619) 525-8304

3798941  
052307

# Exhibit 1



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Shinsuke IKISHIMA et al.	)
Appl. No.	:	10/804,407	)
Filed	:	March 19, 2004	)
For	:	PLASTIC FILM AND ADHESIVE TAPE	)
Examiner	:	ZIRKER, Daniel R.	)
Art Unit	:	1771	)

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DECLARATION OF SHINSUKE IKISHIMA UNDER 37 C.F.R. § 1.132

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

I, Shinsuke IKISHIMA, declare the following:

1. I am one of the three co-inventors of the claimed subject matter of the above-identified patent application.
2. As a co-inventor, I am familiar with the subject matter claimed in the above-identified patent application. I have reviewed and understood the subject matter disclosed in Examples 1 and 2 of U.S. Pat. No. 5,777,022 (hereinafter referred to as "the '022 Patent"), which issued on July 7, 1998 to Bugajski *et al.* in preparing this Declaration.
3. Examples 1 and 2 of the '022 Patent describe the use of Tinuvin® 292, a dispersive hindered amine light stabilizer. The structure of Tinuvin® 292, as known by those of skill in the art, is demonstrated in the attached product information sheet, labeled Appendix 1. Tinuvin® 292 is a low-molecular-weight compound, and is not a polymeric hindered amine light stabilizer. Tinuvin® 292 cannot be incorporated into an acrylic polymer structure in either Example 1 or Example 2 of the '022 Patent because it does not have a functional group reactive to the acrylic polymer structure of the coatings formed in these examples. Instead, Tinuvin® 292 is

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dispersed in and intermixed with the components of the coatings of Example 1 or Example 2 of the '022 Patent. As such, Tinuvin® 292, as present in the coatings of Example 1 or Example 2 of the '022 Patent, is capable of diffusing within the coatings of Example 1 or Example 2 of the '022 Patent but is not capable of being incorporated into the polymer structure thereof.

4. The HALS-hybrid methacrylic or acrylic polymer presently recited in claims of the instant application is a polymer containing a hindered amine light stabilizer incorporated into a methacrylic or acrylic polymer. By virtue of being incorporated into a methacrylic or acrylic polymer, the HALS compound of the HALS-hybrid methacrylic or acrylic polymer does not leach out of the polymer.
5. As is clear from paragraphs 3 and 4 above, there is a structural difference between the HALS-hybrid methacrylic or acrylic polymer recited in claims of the present application and the Tinuvin® 292-containing coatings of the '022 Patent. This structural difference results in properties of the HALS-hybrid methacrylic or acrylic polymer recited in claims of the present application that are different from, and superior to, those of the Tinuvin® 292-containing coating emulsions of the '022 Patent by virtue of containing HALS compounds that are not susceptible to leaching.
6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: June, 18, 2007

By: Shinsuke Ikishima  
Shinsuke IKISHIMA

3792802/052107

# Appendix 1

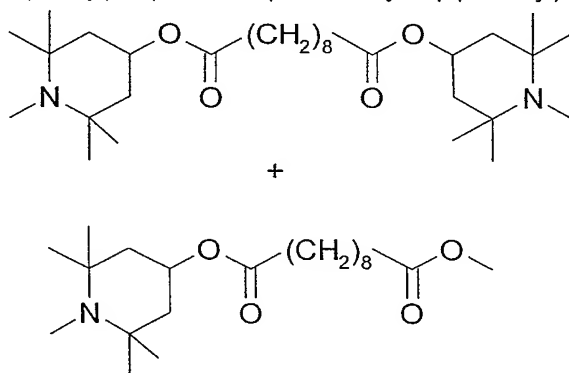


## Ciba™ TINUVIN® 292

**General** Ciba™ TINUVIN 292 is an excellent general purpose liquid hindered amine light stabilizer especially developed for coatings. Its cost efficiency provides significantly extended life time to coatings by minimizing paint defects such as cracking and gloss loss.

**Chemical Name** The active substance is a mixture of:  
*Bis*(1,2,2,6,6-pentamethyl-4-piperidinyI)-sebacate  
and  
1-(Methyl)-8-(1,2,2,6,6-pentamethyl-4-piperidinyI)-sebacate

**Structure**



**Molecular Weight** 508.8 and 369.6

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**Physical Properties**

Appearance:  
slightly yellow liquid

Specific density at 20°C: 0.99 g/cm<sup>3</sup>

Miscibility (g/100 g solution) at 20°C:

butylcarbitol	> 50	
butanol	> 50	
butylacetate	> 50	
Depanol J <sup>1)</sup>	> 50	<sup>1)</sup> Trade Mark of Hoechst
ethylglycol	> 50	
1-methoxypropylacetate-2	> 50	
methylethylketone	> 50	
Solvesso 100 <sup>2)</sup>	> 50	<sup>2)</sup> Trade Mark of Esso
Solvesso 150 <sup>2)</sup>	> 50	
xylene	> 50	
water	n.m.	n.m.= not miscible
hexanedioldiacrylate	> 50	
trimethylolpropanetriacrylate	> 50	

The dispersion of TINUVIN 292 in water may be simplified by dilution with a water miscible solvent such as butylcarbitol.

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**Applications**

TINUVIN 292 may be used after adequate testing in a broad range of applications such as

- automotive refinish coatings
- industrial topcoats
- coil coatings
- wood stains or trade sales paints and varnishes
- radiation curable coatings

Its high cost efficiency has been demonstrated in coatings based on a variety of binders such as

- one- and two-component polyurethanes
- thermoplastic acrylics (physical drying)
- thermosetting acrylics, alkyds and polyesters
- alkyds (air drying)
- water borne acrylics
- phenolics, vinyls
- radiation curable acrylics

The weatherability of such coatings can be significantly improved by use of a combination of TINUVIN 292 with a UV absorber, e.g. TINUVIN 1130, TINUVIN 384, or TINUVIN 328. These synergistic combinations give automotive coatings superior protection against gloss reduction, cracking, blistering, delamination and color change.

The light stabilizers may be added in two coat automotive finishes to the base and clear coat. The optimum protection should be determined by evaluating a broad range of concentrations.

Possible interactions of TINUVIN 292 with paint ingredients such as acid catalysts should be carefully evaluated. Should a negative interaction occur, TINUVIN 123 would be recommended.

The optimum additive levels and ratios should be determined from experimental trials covering a range of concentrations.

<b>Recommended Concentrations</b>	Clear coats and one coat metallic shades:	0.5 - 1.0 %	TINUVIN 292
		+	
		1.0 - 3.0 %	TINUVIN 1130, TINUVIN 384, TINUVIN 928 or TINUVIN 328
	One coat solid shades:	1.0 - 2.0 %	TINUVIN 292 alone or in combination with
		1.0 - 3.0 %	TINUVIN 1130, TINUVIN 384, TINUVIN 928 or TINUVIN 328

Percent by weight of coating resin solids.

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**Handling & Safety** In accordance with good industrial practice, handle with care and avoid release to the environment. For more detailed information please refer to the material safety data sheet.

**FOR INDUSTRIAL USE ONLY**

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